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PROFESSIONAL
2 WAY action radio

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TO: ALL REGENCY COMMUNICATIONS PROFESSIONAL SALES AND SERVICE CENTERS
ALL REGENCY COMMUNICATIONS PROFESSIONAL SALES REPRESENTATIVES

MODEL AFFECTED: MA-332

SERVICE MANUAL ERRATA

Please remove page 2 from your MA-332 Service Manual (Regency P/N 0300-4225-400) and replace it with the attached page.

Change made in Section IV, A - Encode - (The filtered data is available on Pin 9 of the MA-332 board and its amplitude can be varied by the single turn potentiometer R25.) The R25 in the previous sentence should read as R30.

TECHNICAL SERVICE DEPARTMENT
REGENCY COMMUNICATIONS, INC.

AC-636

I - GENERAL DESCRIPTION

The MA-332 is a continuous digitally-coded squelch unit which generates a continuous digital code when the microphone is keyed. A system is identified by a three-digit number, each of which is a decimal number from 0 to 7. The code length is 23 Bits, nine of which are the octal equivalent of the identification number and the remaining are the parity bits.

The MA-332 unmutes audio only on receiving a digital code similar to its own and immediately mutes it upon receiving a special turn-off code which is sent by the transmitting MA-332 at the end of every transmission. In case of signal fade, the MA-332 waits for three words length (69 bits) before muting the audio.

II - ELECTRICAL SPECIFICATIONS

The MA-332 can be programmed to receive inverted code by jumpering J6-7 to J6-8 and to transmit the inverted code by jumpering J6-5 to J6-6. If J6-9 and J6-10 are jumpered together, the unit transmits the turn-off code continuously when the Push-To-Talk is keyed. Special code plugs can be utilized which will allow the received and transmitted codes to be different.

Data Length:	23 Bits Continuous
ID Number:	3 Digit Octal
Data Rate:	134.4 Bits/Second
Turn Off Code:	134.3 Hz Waveform
Supply Voltage:	13.6 Volts Regulated

III - INTERFACE

The unit can be very simply installed in any Microcom two-way radio. The following connections are required:

AØ: Pin #10 - DATA IN - This is the received signal from the radio.

C5: Pin # 6 - PUSH-TO-TALK (PTT) - This is connected to the microphone PTT. A key to ground is required to encode the digital data.

U2: Pin # 9 - CODED DATA - This is the encoded digital data. It should be connected to the tone input of the radio. The deviation should be adjusted to ±750 Hz using single turn potentiometer R30.

K9: Pin # 3 - AUDIO CONTROL - When properly coded digital signal is received, transistor Q4 turns off and the audio is unmuted. It should be connected such that audio is shorted to ground when muting is required.

P1: Pin # 7 - POSITIVE SUPPLY - Switched 13.6 V

G : Pin # 8 - GROUND - Should be connected to the signal ground of the transceiver.

Pin # 1 - Not used

K5: Pin # 2 - HOOKSWITCH - Radio reverts to monitor mode when microphone is off hook.

NOTE: If this unit is being installed on an existing system, a functioning mobile should be examined, along with the radio manual to establish which data polarity is required. The output data should normally be jumpered for non-inverted data. If the radio will not function in the system with one polarity of input data, the opposite polarity of input data should be selected.

The code numbers for the Digitally-Coded Squelch system have been selected with special care to minimuze falsing and interference. Only codes suggested by Regency or taken from a similar operational system should be installed.

IV - CIRCUIT DESCRIPTION

IC1 is a custom-integrated circuit which encodes the digital data when PTT is depressed and unmutes audio upon receiving a correct digital code. It reads the DCS code number from the factory-programmed diode matrix IC-2.

A - Encode

The collector of transistor Q2 is normally at zero volts DC. When PTT is depressed, the collector of Q2 or Pin 37 of IC1 switches to +5V DC and IC1 starts encoding. The digitally-encoded data is available on Pin 27 of IC1 and appears to be a pulse train of continuously varying width. The digital data then passes through a low-pass filter formed by the Operational Amplifier IC5-A and its associated passive components. This low-pass filter limits the frequency spectrum of data to sub-audible frequencies. The filtered data is available on Pin 9 of the MA-332 board and its amplitude can be varied by the single turn potentiometer R30. The depression of PTT also causes Pin 30 of IC1 to switch Q3 ON and keys the transmitter. IC5-B provides an extra gain stage for encoded data which may be required in some radios. R38 should then be cut to give a gain of 25.

The three digits of the code plug IC2 are read by IC1 through scan lines on Pins 3, 4, and 5 of IC2 and through the Binary Data lines on Pins 8, 9, and 7 of IC2. If desired, a special code plug can be obtained in which the received code is different from the transmit code when J6-2 is jumpered to J6-1. If J6-10 is jumpered to J6-9, a perfect sinewave is available on Pin 9 of the DCS board everytime PTT is depressed. This can be used to set the deviation by adjusting the potentiometer R30.